

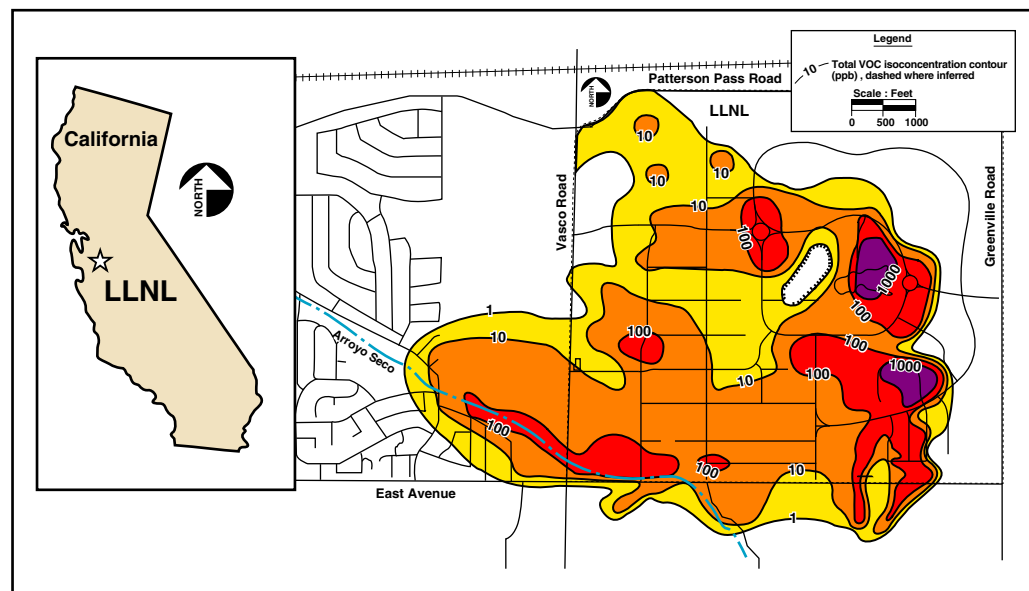


# Lawrence Livermore National Laboratory Employs Hydrostratigraphic Analysis to Accelerate Cleanup and Reduce Costs at its Livermore Site

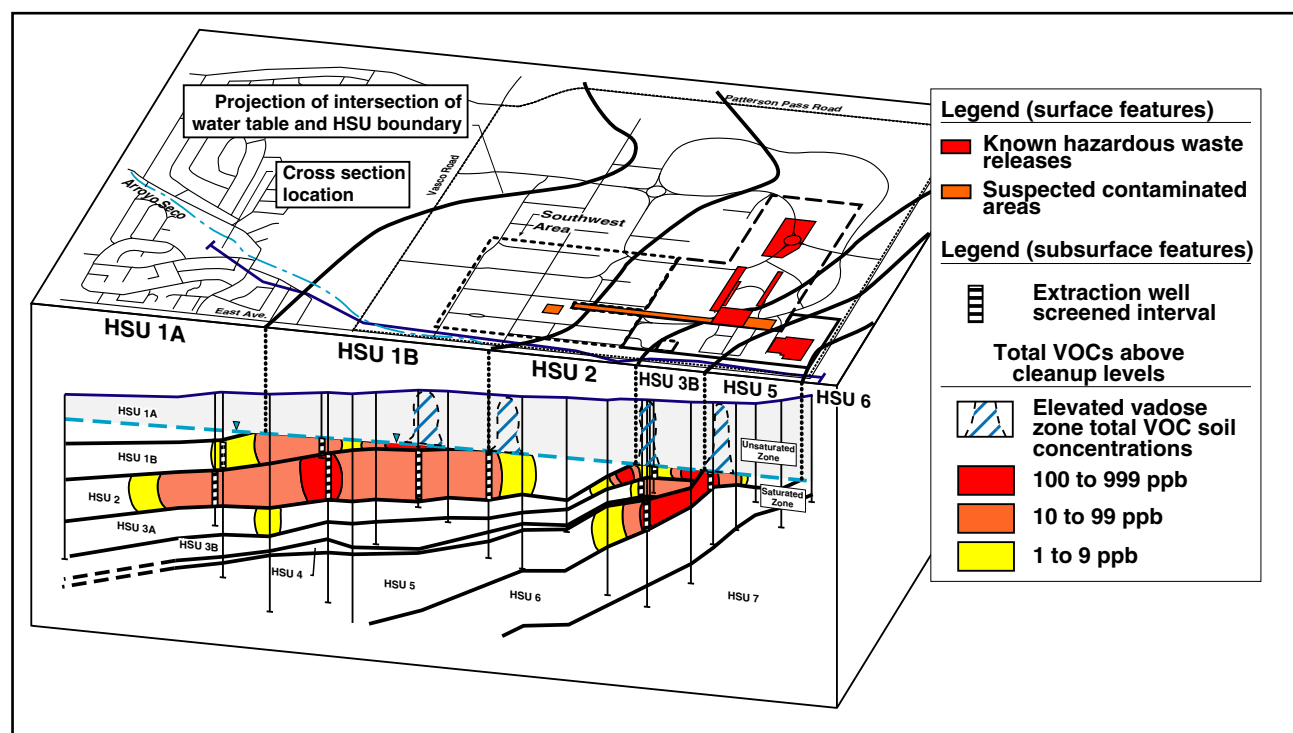


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Environmental Restoration Division, Lawrence Livermore National Laboratory  
P.O. Box 808, L-530, Livermore, CA 94551, USA – Phone: (925) 422-4635



Site map of LLNL Livermore Site showing total volatile organic compounds (VOCs) contoured without respect to depth in 1990.



The relationship is shown between VOC source areas, migration pathways and ground water plumes within HSUs. Extraction wells are positioned to target individual VOC plumes.

- Hydrostratigraphic unit (HSU) analysis has proven to be a cost-effective site investigation tool that allows managers to make informed and timely decisions regarding ground water cleanup.
- The HSU methodology is a systematic analysis of multiple independent data sets, including lithologic descriptions, geophysical logs, hydraulic tests, and soil and ground water chemistry.
- The HSU methodology allows LLNL to develop a site-wide hydrogeologic model necessary for identifying specific contaminant plumes for remediation.
- HSU analysis provides for carefully planned, phased implementation of extraction wells and treatment facilities that optimize remedial actions while accelerating contaminant mass removal.
- The hydrostratigraphic framework for the site has proven to be an effective visualization tool for presenting complex hydrogeologic and remediation issues to site management, regulatory agencies and the community.

This typical 1990 hydrogeologic cross-section, while accurately portraying the heterogeneity of the subsurface, does not depict the hydraulic communication between permeable layers. Compare with Figure B below.

Typical 1996 hydrostratigraphic cross-section. The subsurface depicted in A has been subdivided into hydrostratigraphic units whose permeable layers are hydraulically connected.

